

Application #09/945,123
Amendment dated September 27, 2005

Remarks:

In the Office Action mailed on June 27, 2005, the Examiner rejected claims 1-38, 43 and 44. Examiner objected to claims 39-42. Applicants herein amend claims 1-31, and 43. Applicants have cancelled claim 36. New claims 45-48 are presented herein. Claims 1-44 are pending in the application.

35 USC 112, 2nd paragraph

Claim 16 was rejected under 35 USC 112, second paragraph, for using the term "approximately" which is a relative term, thus rendering the claim indefinite. Claim 16 has been amended herein to more clearly and distinctly define the scope of the invention. Accordingly, applicants respectfully request reconsideration of Claim 16 and its early allowance.

Claims 1-30 were rejected "Claim 16 is rejected under 112 2nd, by default Claims 1-30 are rejected under 112 2nd". Applicants respectfully believe this was an inadvertent statement by the Examiner in that only Claims 17-21 depend from claim 16 and therefore are the only claims that would be affected by any lack of clarity in claim 16. However, since claim 16 has been amended and now satisfies the requirements of 35 USC 112 2nd paragraph, claims 17-21 also meet those requirements. Accordingly, applicants respectfully request withdrawal of the rejection, reconsideration of Claims 1-30, and their early allowance.

35 USC 102(b)

Claims 1-14 and 28-37, 43 are rejected under 35 USC 102(b) as being anticipated by Kennedy et al. (U.S. Pat. No. 6,084,967, hereinafter Kennedy). Applicants respectfully traverse.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as much detail as is contained in the claim." MPEP 2131.

Claim 1 recites:

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“an integrated circuit having a biometric voice sensor integrated into a portion of the integrated circuit, wherein the voice sensor is configured to detect the speech of a user and to produce a signal responsive to the speech of the user; and a voice processing circuit integrated into a portion of the integrated circuit, wherein the voice processing circuit is configured to receive the signal from the biometric voice sensor and to process the signal to extract the signal characteristics.”

Kennedy does not teach or suggest these elements.

Claim 1 recites “an integrated circuit having a biometric voice sensor integrated into a portion of the integrated circuit.” Kennedy does not teach or suggest that element.

On the contrary Kennedy states that “the radiotelephone 101 includes biometric verification circuitry 201 which works in cooperation with the token or smart card 105” (Kennedy, Col. 3, lines 6-8). It is also significant that is stated in Kennedy that “a smart card 105 suitable for use with the invention is described in U.S. Pat. No. 5,563,945. A close review of '945 has not revealed any kind of biometric sensor integrated into a portion of an integrated circuit.

The Examiner has indicated that “a biometric voice sensor is inherent in Kennedy, because Kennedy discloses voice biometrics (see col. 2, lines 65-66) including a portion of an integrated circuit” (Office Action, page 2-3, numbered paragraph 5). Applicants disagree. “To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999), *cited in*, MPEP 2112. Kennedy does not describe in detail the radiotelephone 101. However, Kennedy states that “U.S. Pat. No. 5,615,260 describes the construction of a radiotelephone such as that shown in FIG. 1 in greater detail” (Kennedy, Col. 2, lines 33-35). Neither

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disclosure explicitly or implicitly describes a voice sensor. The radiotelephone of FIG. 1 appears to be a conventional mobile telephone. Applicants posit that conventional telephones have some form of microphone that is not part of an integrated circuit card inserted into the telephone. Therefore, because the biometric sensor in Kennedy may be a microphone which is *not* a portion of the smart card, it follows that "a biometric voice sensor integrated into a portion of the integrated circuit" is *not necessarily present*, as required by rule stated in Robertson, the Examiner's inference is incorrect.

Furthermore, Kennedy describes several alternative embodiments of his invention, one of which is "the token may be comprised entirely of software ... in that embodiment the hardware smart card is not required" (Kennedy, Col. 2, lines 50-52). Thus, in that embodiment it would not be possible for the biometric sensor to be incorporated into the integrated circuit card because that embodiment of Kennedy lacks a hardware smart card. However, a biometric sensor would still be required. Because that biometric sensor can, by definition, not be part of the smart card, it must be part of some other structure.

From the foregoing it is apparent that Kennedy does not include "an integrated circuit having a biometric voice sensor integrated into a portion of the integrated circuit".

Claim 1 further recites "a voice processing circuit integrated into a portion of the integrated circuit". On the contrary, Kennedy states that "the radiotelephone 101 includes biometric verification circuitry 201 which works in cooperation with the token or smart card 105" (Kennedy, Col. 3, lines 6-8). Thus, it is clear that Kennedy's device does not include "a voice processing circuit integrated into a portion of the integrated circuit."

Accordingly, because, not only one, but all elements of Claim 1 are not taught by Kennedy, the Examiner has failed to establish a case for the proposition that Claim 1 is anticipated by Kennedy.

Claim 31 recites analogous limitations and is therefore also not anticipated by Kennedy for the same reasons given in support of Claim 1.

Claim 1-13 depend from Claim 1 and Claims 32-37 and 43 depend from Claim 31. These claims incorporate all the limitations of their respective base

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claims, recite further unique combinations, and are not anticipated for all the reasons given in support of the base claims. Accordingly, applicants respectfully request reconsideration of Claim 1-14 and 28-37, 43 and their early allowance.

35 USC 103(a)

Claim 15 is rejected under 35 USC 103(a) as being unpatentable over Kennedy in view of Maes et al. (U.S. Pat. No. 6,411,933, hereinafter Maes). Applicants respectfully traverse.

The Examiner has failed to establish a *prima facie* case of obviousness. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP 2143. The Examiner has failed to meet this burden.

Let's consider these three criteria one-by-one: "First, there must be some suggestion or motivation ... to modify *the reference*." Claim 15 recites "The portable device of claim 2, wherein the voice sensor comprises a pressure sensor." As the Examiner has observed, "Kennedy does not disclose a pressure sensor. Maes discloses a pressure sensor." Thus the issue is whether there would be a motivation to combine the Maes pressure sensor with Kennedy's radiotelephone and smart card. The Examiner argues that "the motivation is that Kennedy discloses a need exists for techniques that can better guarantee that a speaker physically produced a subject utterance (see col. 2, lines 46-48 of Maes)" (Office Action, Page 7, item 32, apparently citing in error a passage from Maes for what Kennedy supposedly discloses), and continuing: "a need exists for techniques that can better guarantee that a given biometric attribute has been physically produced by the person offering the biometric attribute as his own, thus Maes discloses a pressure sensor, that measures the pressure waves of the human vocal tract" (Office Action Page 7, item 32). Applicants respectfully disagree.

Kennedy's radiotelephone is a highly sophisticated instrument with the primary purpose of providing a mechanism for mobile telephony. Kennedy

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teaches a radiotelephone that is more secure than ordinary radiotelephones. Kennedy's radiotelephone requires that "the user must insert a PIN and utter sounds. The radiotelephone device will activate the sure functions only if the PIN is correct and the sounds uttered are authenticated against voice feature vectors stores it (sic) the token" (Kennedy, Abstract). Thus, it appears the Kennedy has attempted to increase the level of authentication to a three-factor authentication (what you have, what you know, and who you are), wherein the "what you know" is answered by the user entering a PIN and the "who you are" is answered by "sounds uttered authenticated against voice feature vectors". There is nothing in Kennedy that indicates that there is a perceived inadequacy in the biometric that is used therein. Therefore, a person would not be motivated to modify Kennedy to find better biometric solutions.

Now consider the motivation to combine from the perspective of Maes. Maes deals with mechanisms used by a human to produce speech (Maes, Col 8, lines 38-41, line 45 and line 50). Maes teaches that "the pressure pulses cause the surrounding tissue to vibrate at low levels which affects the sound as well. ... Such vibrations can be measured in accordance with the sensor 110" (Maes, Col. 8, Lines 50-58). Maes further explains that "it is to be appreciated that the antenna 23 corresponds to the speech production feature capturing sensor 110 of Fig. 1" (Maes, Col. 9, Lines 45-47). "The antennas 21, 22, 23 ... are directed to various parts of the vocal system" (Maes, Col. 9, Lines 25-26). "Antenna 23 is position (sic) to detect vocal fold motion or glottal excitation" (Maes, Col. 9, lines 35-36), which is illustrated in Fig. 6 of Maes as being proximate to the lower part of the user's neck.

Maes further teaches an elaborate positioning structure comprising "support stand 25 positions the antennas 21,22,23 to detect signal from various parts of the vocal tract, e.g., by using face positioning structure 29 and chest positioning structure 30" (Maes, Col. 9, lines 29-32). Thus, the inference must be drawn that it is critical for proper functioning of Maes apparatus that it would be properly positioned. A person skilled in the art would therefore rule out its use in conjunction with a mobile telephone, which by its very nature is more frequently not positioned in a particular position with respect to a user's vocal tract. On the contrary, mobile telephones typically are constructed such that

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they do not need to be held directly in front of the user's mouth or vocal apparatus.

Therefore, a person would not be motivated to modify Maes to adopt the teachings of Kennedy.

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP 2143.01 *quoting* In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Adding the necessary equipment to Kennedy to provide for a pressure sensor to detect speech would necessarily be considered "unsatisfactory" for most any person finding himself using the Kennedy invention modified to incorporate the speech production feature capturing sensor of Maes. Applicants are building a mental picture of such an apparatus. It would have the radiotelephone of Kennedy with an antenna that would be positioned immediately next to the user's lower neck. Applicants posit that such an apparatus would not be practical and would be considered utterly unsatisfactory for its intended purpose. Accordingly, there would be no suggestion or motivation to make the proposed modification.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious" MPEP 2143, *quoting*, In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The modification to Kennedy to add a speech production feature capturing sensor 110 of Maes would change the principle of operation of Kennedy. The speech production feature capturing sensor of Maes is used to detect "pressure pulses [that] cause the surrounding tissue to vibrate at low levels ... [that are] not heard acoustically" (Maes, Col. 8, lines 50-56). Kennedy's apparatus is focused on improvements to a radiotelephone. Radiotelephones are used to communicate that which can be acoustically heard. Thus, the use of a speech production feature capturing sensor to detect something that cannot be heard would change the principle of operation of Kennedy.

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Thus, with respect to the first criteria set forth in the MPEP Section 2143, the issue whether there is some suggestion or motivation to combine Kennedy and Maes, has not been found.

The second requirement for a *prima facie* case of obviousness is that there must be a reasonable expectation of success. MPEP 2143. The proposed modification to Kennedy could not reasonably be expected to succeed. Kennedy teaches certain techniques associated with voice sensor, a biometric voice sensor as used in a radio telephone to solve the problems associated with the activation of secure function. Maes teaches certain technique associated with pressure sensor to solve the problems associated with measuring the pressure waves of the human vocal tract. As noted above, Maes disclosure implies the requirement that the speech production feature capturing sensor (which corresponds to the sensor 110 for detection of pressure waves) is positioned very precisely proximate to the front of the user's lower neck. With the expected use of a cell phone handset, that could not be expected. Thus, it would not be reasonable to expect to succeed in producing the proffered combination of Kennedy and Maes.

Finally, the prior art references must teach or suggest all the limitations of the claimed invention. As the Examiner has noted "Kennedy in view of Maes does not disclose voice sensor comprising a pressure sensor is implemented in a portable integrated circuit card" (Office Action, Page 7, item 32).

As noted above in the argument in response to the rejection under 35 USC 102, Kennedy does not teach or suggest "an integrated circuit having a biometric voice sensor integrated into a portion of the integrated circuit, wherein the voice sensor is configured to detect the speech of a user and to produce a signal responsive to the speech of the user; and a voice processing circuit integrated into a portion of the integrated circuit, wherein the voice processing circuit is configured to receive the signal from the biometric voice sensor and to process the signal to extract the signal characteristics" (Claim 1). At a minimum, Maes also fails to teach or suggest "a biometric voice sensor integrated into a portion of the integrated circuit". As discussed herein above, Maes' sensor 110, which is used to detect pressure waves generated from speech production, is an antenna (23) that projects towards the user's lower neck. This clearly cannot be construed as a biometric sensor that is "integrated into a portion of the integrated circuit".

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Accordingly, for any of the foregoing reasons the Examiner has failed to meet the third criteria for establishing a *prima facie* case for the assertion that Claims 15, etc. are obvious over Kennedy in view of Maes.

To establish a *prima facie* case of obviousness, three basic criteria must be met: motivation to combine, expectation of success, and teaching of all elements. The Examiner has failed to meet each of these criteria. Accordingly, because a *prima facie* case of obviousness has not been met if even just one of the three criteria have not been satisfied, the Examiner has failed to establish a *prima facie* case of obviousness for the proposition that Claim 15 is obvious over Kennedy in view of Maes. "If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992), *quoted in* In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994).

Therefore, Applicants respectfully posit that Claim 1 is not obvious over the combination of Kennedy and Maes, taken singly or in combination. Claim 31 recites analogous limitations to those set forth in Claim 1 and is, therefore, also not obvious for the same reasons given in support of Claim 1.

Claims 15 and 27 depend from Claim 1 and Claims 38 and 44, from Claim 31. These claims incorporate all the limitations of their respective base claims and provide further unique and non-obvious combinations. Therefore, Claims 15, 27, 38 and 44 are patentable over Kennedy and Maes, at least for the reasons given in support of Claims 1 and 31, and also by virtue of such further combinations.

The Examiner has objected to claims 39-42 "as being rejected on base claims". (Office action, Page 8, item 37). Claims 39-42 depend from Claim 31 and are therefore patentable for the reasons given in support of Claim 31 and by virtue of further unique and non-obvious combinations provided by these claims. Therefore, Applicants respectfully request allowance of Claims 39-42.

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CONCLUSION

It is submitted that all of the claims now in the application are allowable. Applicants respectfully request consideration of the application and claims and its early allowance. If the Examiner believes that the prosecution of the application would be facilitated by a telephonic interview, Applicants invite the Examiner to contact the undersigned at the number given below.

Applicants respectfully request that a timely Notice of Allowance be issued in this application.

Respectfully submitted,

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